

the present invention is to provide a method for determining the presence of a specific nucleic acid sequence in a sample, which method is rapid, sensitive, and reliable. Another object of the present invention is to provide a method for determining the presence of a specific nucleic acid sequence in a sample, which method can be used to detect a wide variety of different nucleic acid sequences. A further object of the present invention is to provide a method for determining the presence of a specific nucleic acid sequence in a sample, which method can be used to detect a wide variety of different nucleic acid sequences.

The present invention is based on the use of a probe having a sequence complementary to a portion of the target nucleic acid sequence. The probe is labeled with a detectable marker. The probe is hybridized to the target nucleic acid sequence. If the probe is complementary to the target nucleic acid sequence, it will hybridize to the target nucleic acid sequence. The presence of the probe can be detected by detecting the marker. The marker can be any detectable marker, such as a radioactive isotope, a fluorescent dye, or a colorimetric indicator.

The present invention is based on the use of a probe having a sequence complementary to a portion of the target nucleic acid sequence. The probe is labeled with a detectable marker. The probe is hybridized to the target nucleic acid sequence. If the probe is complementary to the target nucleic acid sequence, it will hybridize to the target nucleic acid sequence. The presence of the probe can be detected by detecting the marker. The marker can be any detectable marker, such as a radioactive isotope, a fluorescent dye, or a colorimetric indicator.

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DETAILED DESCRIPTION OF THE INVENTION

The present invention is based on the use of a probe having a sequence complementary to a portion of the target nucleic acid sequence.

The probe is labeled with a detectable marker.

The probe is hybridized to the target nucleic acid sequence.

If the probe is complementary to the target nucleic acid sequence, it will hybridize to the target nucleic acid sequence.

The presence of the probe can be detected by detecting the marker.

The marker can be any detectable marker, such as a radioactive isotope, a fluorescent dye, or a colorimetric indicator.

in discussion. In addition to the above, it is interesting to note that there was considerable scatter in the values of the ratios of the various components. This was particularly evident in the case of the ratio of the surface area to the total cross-sectional area.

APPENDIX D

In an attempt to determine the effect of the various parameters involved with radial magnetic field on the magnetization curves, a series of measurements were made at 4°K. in the following cores:

(1) The core T₂ of Fig. 1; (2) core T₂ with the height of the core increased to 1.1 in.; (3) core T₂ with the top surface of the iron removed, so that the height of the core is 0.9 in. and the cross-sectional area is approximately 1.4 times greater than the cross-sectional area of core T₂; (4) core T₂ with a central hole of diameter 0.3 in. and a height of 0.5 in. The core has a circular cross-section 1.5 in. in diameter and a height of 1.0 in. The top surface of the iron is removed, so that the height of the core is 0.5 in. and the cross-sectional area is approximately 1.4 times greater than the cross-sectional area of core T₂. The ratio of the height to the diameter of the top surface is approximately 0.33, which is the same as for core T₂.

The value of the ratio of the height to the width of the cross-section of the top surface is also the same as for core T₂.

The values of the various parameters involved with the magnetic field and the magnetization curves are given in the following table.

APPENDIX E

In an attempt to determine the effect of the various parameters involved with the magnetic field and the magnetization curves, a series of measurements were made at 4°K. in the following cores:

(1) The core T₂ of Fig. 1; (2) core T₂ with the height of the core increased to 1.1 in.; (3) core T₂ with the top surface of the iron removed, so that the height of the core is 0.9 in. and the cross-sectional area is approximately 1.4 times greater than the cross-sectional area of core T₂; (4) core T₂ with a central hole of diameter 0.3 in. and a height of 0.5 in. The core has a circular cross-section 1.5 in. in diameter and a height of 1.0 in. The top surface of the iron is removed, so that the height of the core is 0.5 in. and the cross-sectional area is approximately 1.4 times greater than the cross-sectional area of core T₂. The ratio of the height to the diameter of the top surface is approximately 0.33, which is the same as for core T₂. The value of the ratio of the height to the width of the cross-section of the top surface is also the same as for core T₂.

The values of the various parameters involved with the magnetic field and the magnetization curves are given in the following table.

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(2) the present time is the time of the present

(3) the present time is the time of the present

These three readings are all possible.

(4) the present time is the time of the present

and this is the reading which is most likely to be chosen. The reason is that the verb *is* is used here to denote the state of affairs at the present time. The other two readings are not impossible, but they are less likely to be chosen because they suggest that the time referred to is not the present time.

(5) the present time is the time of the present

and this is the reading which is most likely to be chosen. The reason is that the verb *is* is used here to denote the state of affairs at the present time. The other two readings are not impossible, but they are less likely to be chosen because they suggest that the time referred to is not the present time.

(6) the present time is the time of the present

(7) the present time is the time of the present

These two readings are all possible.

(8) the present time is the time of the present

and this is the reading which is most likely to be chosen. The reason is that the verb *is* is used here to denote the state of affairs at the present time. The other two readings are not impossible, but they are less likely to be chosen because they suggest that the time referred to is not the present time.

THE INFLUENCE OF POLYMER CONCENTRATION ON THE VISCOSITY

of a polymer solution is a subject which has been studied by many investigators. The results have been summarized by Flory¹ and by Helfand². In general, the viscosity of a polymer solution increases with increasing concentration up to a certain point, after which it decreases.

The viscosity of a polymer solution is often measured by means of a capillary viscometer. The viscosity of a polymer solution in a capillary viscometer is given by the equation³

$$\eta = \frac{Q}{Q_0} \cdot \frac{L}{R^2} \cdot \frac{P}{\rho g} \quad (1)$$

where Q is the volume of liquid flowing through the capillary in time t , Q_0 is the volume of liquid flowing through the capillary in time t at zero pressure, L is the length of the capillary, R is the radius of the capillary, P is the pressure difference across the capillary, and ρ is the density of the liquid.

The viscosity of a polymer solution in a capillary viscometer is often expressed as the ratio of the viscosity of the polymer solution to the viscosity of the solvent.

The viscosity of a polymer solution in the capillary viscometer is also affected by the temperature of the solution. The viscosity of a polymer solution in a capillary viscometer is given by the equation⁴

$$\eta = \eta_0 \cdot e^{-\alpha T} \quad (2)$$

where η_0 is the viscosity of the polymer solution at temperature T_0 , α is a constant, and T is the temperature of the polymer solution.

The viscosity of a polymer solution in a capillary viscometer is also affected by the concentration of the polymer solution. The viscosity of a polymer solution in a capillary viscometer is given by the equation⁵

$$\eta = \eta_0 \cdot e^{-\alpha C} \quad (3)$$

where η_0 is the viscosity of the polymer solution at concentration C_0 , α is a constant, and C is the concentration of the polymer solution.

The viscosity of a polymer solution in a capillary viscometer is also affected by the temperature of the solution.

The viscosity of a polymer solution in a capillary viscometer is also affected by the concentration of the polymer solution.

The viscosity of a polymer solution in a capillary viscometer is also affected by the temperature of the solution.

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The viscosity of a polymer solution in a capillary viscometer is also affected by the temperature of the solution.

the first two years of the study. The results of the first year were published in 1963 and those of the second year in 1964.

The present paper is concerned with the third year of the study. The results of the first three years of the study will be published in three separate papers. The first paper will cover the first year of the study, the second paper the second year and the third paper the third year. The present paper will cover the third year of the study.

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CHAPTER II. THE STUDY OF THE THIRD YEAR

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and the author's name, and the date of the letter. The author's name and date are usually placed at the top left of the page.

The first few lines of the letter are usually descriptive, giving information about the author, the date, and the purpose of the letter. This is followed by the body of the letter, which consists of several paragraphs of text. The body of the letter may contain several topics or subjects, each with its own heading and sub-headings. The letter may also contain several figures or tables, which are usually placed at the end of the letter. The letter may also contain several footnotes, which are usually placed at the bottom of the page.

The letter may also contain several references, which are usually placed at the bottom of the page. The references may be in the form of a list of books, articles, or other sources that the author has consulted or cited in the letter. The references may also be in the form of a list of sources that the author has consulted or cited in the letter.

The letter may also contain several conclusions, which are usually placed at the end of the letter. The conclusions may be in the form of a summary of the letter's main points or in the form of a statement of the letter's main findings. The conclusions may also be in the form of a statement of the letter's main findings.

The letter may also contain several recommendations, which are usually placed at the end of the letter. The recommendations may be in the form of a list of actions that the author recommends or in the form of a statement of the letter's main findings. The recommendations may also be in the form of a statement of the letter's main findings.

The letter may also contain several acknowledgments, which are usually placed at the end of the letter. The acknowledgments may be in the form of a list of people or organizations that the author thanks or in the form of a statement of the letter's main findings. The acknowledgments may also be in the form of a statement of the letter's main findings.

the circuit, and the value of the frequency at which the current is zero. This is the natural frequency of the circuit and is also called the resonant frequency. The reactance of the capacitor is proportional to the reciprocal of the frequency, so the current in the circuit is proportional to the frequency. The voltage across the capacitor is proportional to the current in the circuit, so the voltage across the capacitor is proportional to the frequency.

In the present case suppose that the circuit is connected to a voltage source whose value does not change with time. If the frequency of the source is increased, the current in the circuit will increase. At first the current will increase rapidly, but eventually it will reach a steady-state value. If the frequency is decreased, the current in the circuit will decrease until it reaches a steady-state value. The voltage across the capacitor will also change with time, and the voltage across the capacitor will reach a steady-state value. The voltage across the capacitor will be proportional to the current in the circuit, and the voltage across the capacitor will reach a steady-state value.

As a consequence, frequency is measured, often, by measuring the time required for the current in the circuit to reach a steady-state value. This is called the time constant of the circuit, and the time constant depends on the inductance and the capacitance of the circuit. In other words, if the inductance of the circuit is doubled, the time constant is doubled, and if the capacitance of the circuit is doubled, the time constant is doubled.

CHARGE AND DISCHARGE

Another way of measuring the frequency of a circuit is to measure the time required for the current in the circuit to reach a steady-state value. This is called the time constant of the circuit, and the time constant depends on the inductance and the capacitance of the circuit.

This is the last step in the analysis of a circuit and, in general, the analysis of a circuit is the analysis of the circuit with one or more dependent variables, called state variables. In addition, it is the natural frequency of the circuit, the frequency at which the circuit is in resonance, and the time constant of the circuit.

In the analysis of a circuit, the dependent variables are the values of the different voltages and currents in the circuit and the independent variables are the rate of change of time (equal to the "time derivative" of the variable), the voltage, and the current. These are the dependent variables and the independent variables. The dependent variables are the voltages and the currents in the circuit, and the independent variables are the rates of change of the voltages and the currents in the circuit.

The rate of change of flux in core T_1 is

$$(8) \quad \frac{d\phi_1}{dt} = \frac{N_p}{N_c} \left(\frac{\dot{E}_{c1}}{N_c} + \frac{\dot{E}_{c2}}{N_c} \right)$$

Hence it is the cyclic saturation of core T_1 that determines the output frequency, it is apparent that for a fixed value of E_p , the frequency of the inverter is determined by the sum of the two control voltages E_{c1} and E_{c2} .

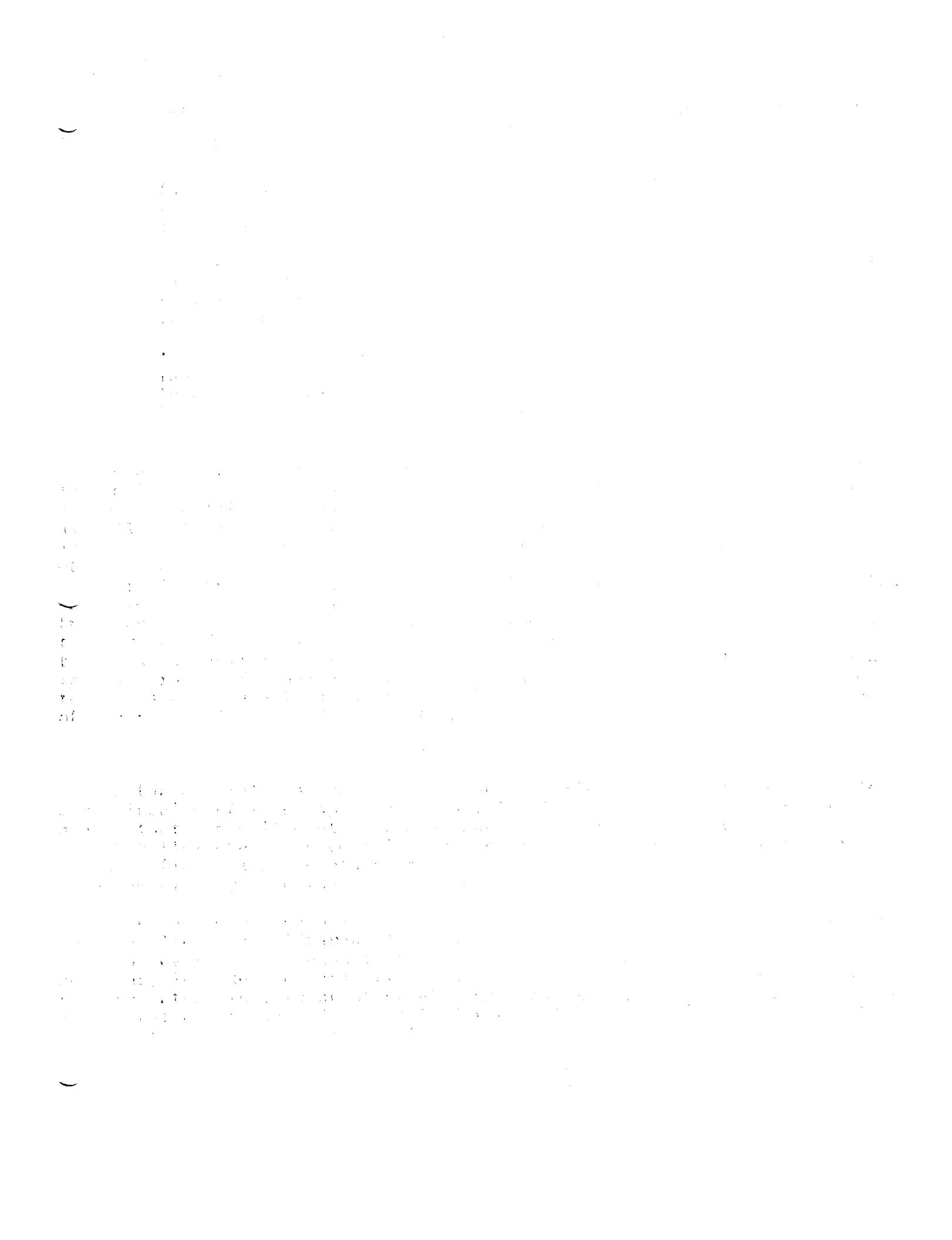
A test circuit using three cores was constructed to verify the correspondence between the sum of the control voltages and the output frequency for such an inverter. The circuit is described in Appendix II and the results obtained are shown in Figure 11. Here, output frequency is shown plotted against the sum of two control voltages $E_{c1} + E_{c2}$ for three different conditions. In the first instance, shown by solid circles, the value of E_{c2} at each point is one-third of the value of E_{c1} . For example, the first point on this characteristic indicates that an output frequency of 1,520 cps is obtained when $E_{c1} = 0.30$ volts and $E_{c2} = 0.10$ volts. The second condition, shown by squares, is for the condition of E_{c1} equal to E_{c2} . The third condition, shown by triangles, corresponds to the case when E_{c2} is twice as large as E_{c1} . The data for each one of these three cases is seen to lie along the straight line drawn in Figure 11. This indicates that the high degree of linearity exhibited by Circuit I is preserved when more than two cores are used; and also, that the accuracy with which the two signals are summed is quite high.

Another output, which is quite different in nature from the variable-frequency output just discussed and which is advantageous in certain applications, is provided by means of winding N_s in the circuit of Figure 10. This winding is wound so as to encircle cores T_2 and T_3 , the cores to which the control voltages are applied, but not to encircle T_1 . The magnitude of the square wave of voltage induced in winding N_s therefore will be directly proportional to the sum of the E_c 's. If this voltage is full-wave rectified, there will result a d-c voltage which is proportional to $(k_1 E_{c1} + k_2 E_{c2})$ and which is isolated from the d-c supply and the control signals. Here, k_1 and k_2 are constants dependent upon the turns ratios, and k_1 will equal k_2 if $E_{c1} = E_{c2}$. Such a circuit may be used to combine several d-c signals possessing a common ground and to allow the resulting signal to be amplified by an amplifier also possessing the same ground. The output current which can be drawn from winding N_s , however, must be quite small in order not to upset the mmf relationships upon which the operation of the circuit depends.

Although the circuit of Figure 10 only provides for the summing of two voltages, by adding more cores within the winding N_s more voltages can easily be summed.

CONCLUSIONS

This paper describes a class of magnetic-coupled multivibrators in which the use of a multiple-core transformer makes possible frequency control and other characteristics not easily obtainable with conventional magnetic-coupled multivibrators. Three self-oscillating inverters have been discussed, each circuit illustrating different characteristics. In conclusion and the description of these circuits, the objective has been to present circuits which will illustrate the principles involved in an inverter using a number of cores. It is hoped that these basic principles, in turn, will facilitate the specialized adaptations of these circuit principles.



1. Electromagnetic
Induction
Solenoid Coils

It is often desired to have
flow vessels with a coil wound
of a specific number of turns
treating things like solenoids.
windings. Such coils are con-
nected through a switch so that
polarities are reversed. Current
flows in wires, and the magnetic
field is produced by the current.
The magnetic field is produced
turns in winding. If a voltage
is applied across the coil, it is
to make current flow in the
current trees.

A similar method of
current production can
really be used. This
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portion of the coil
arrangement. It is
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Circuit 1

U_X = 12V
 D_3 , D_4
 R_M = 100Ω
 L_1 , L_2

1. Find the value of I_1 & I_2
2. Find the value of V_{out} & V_{in}

Circuit 2

I_3
 A_{v3}
 D_1 , D_2
 R_L

1. Find the value of I_3 & V_{out}
2. Find the value of V_{in} & A_{v3}
3. Find the value of V_{out} & A_{v3}
4. Find the value of V_{in} & I_3

Ques.

1. Define Transistor. Name the two types of transistors. State the working principle of a transistor with the help of circuit diagram.

2. Define Biasing. Explain the working of a common base amplifier. Draw its circuit diagram and explain its working principle.

3. Define Transistor. Explain the working principle of a common collector amplifier. Draw its circuit diagram and explain its working principle.

4. Define Transistor. Explain the working principle of a common emitter amplifier. Draw its circuit diagram and explain its working principle.

5. Define Transistor. Explain the working principle of a common collector amplifier. Draw its circuit diagram and explain its working principle.

6. Define Transistor. Explain the working principle of a common base amplifier. Draw its circuit diagram and explain its working principle.

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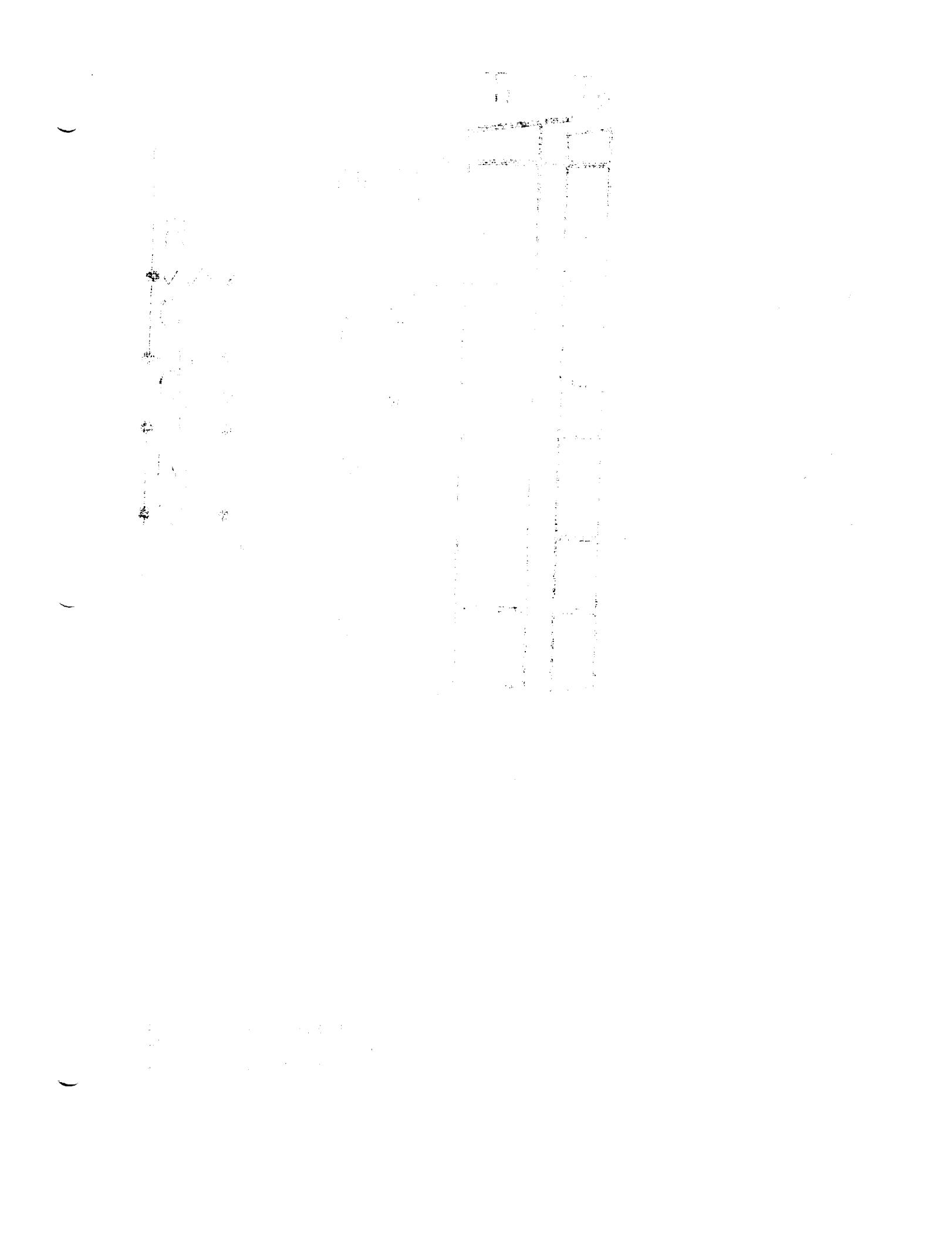
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1. The first two terms in the expansion of the function ψ are given by
the equations
$$\psi = \frac{1}{2} \left(\frac{1}{\sqrt{2}} \sin \theta + \frac{i}{\sqrt{2}} \cos \theta \right)$$
$$+ \frac{1}{2} \left(\frac{1}{\sqrt{2}} \sin \theta - \frac{i}{\sqrt{2}} \cos \theta \right) e^{i\omega t}$$

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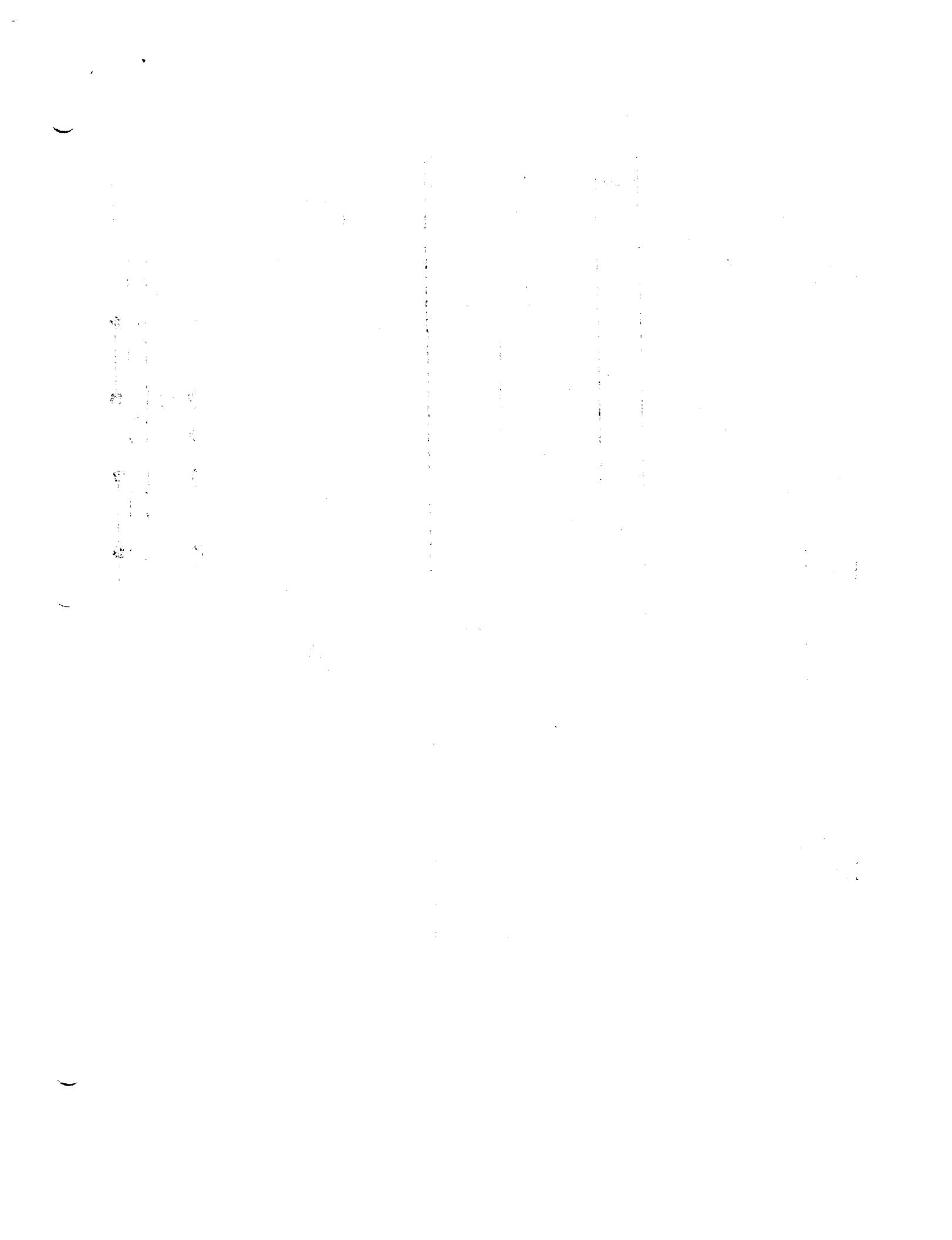
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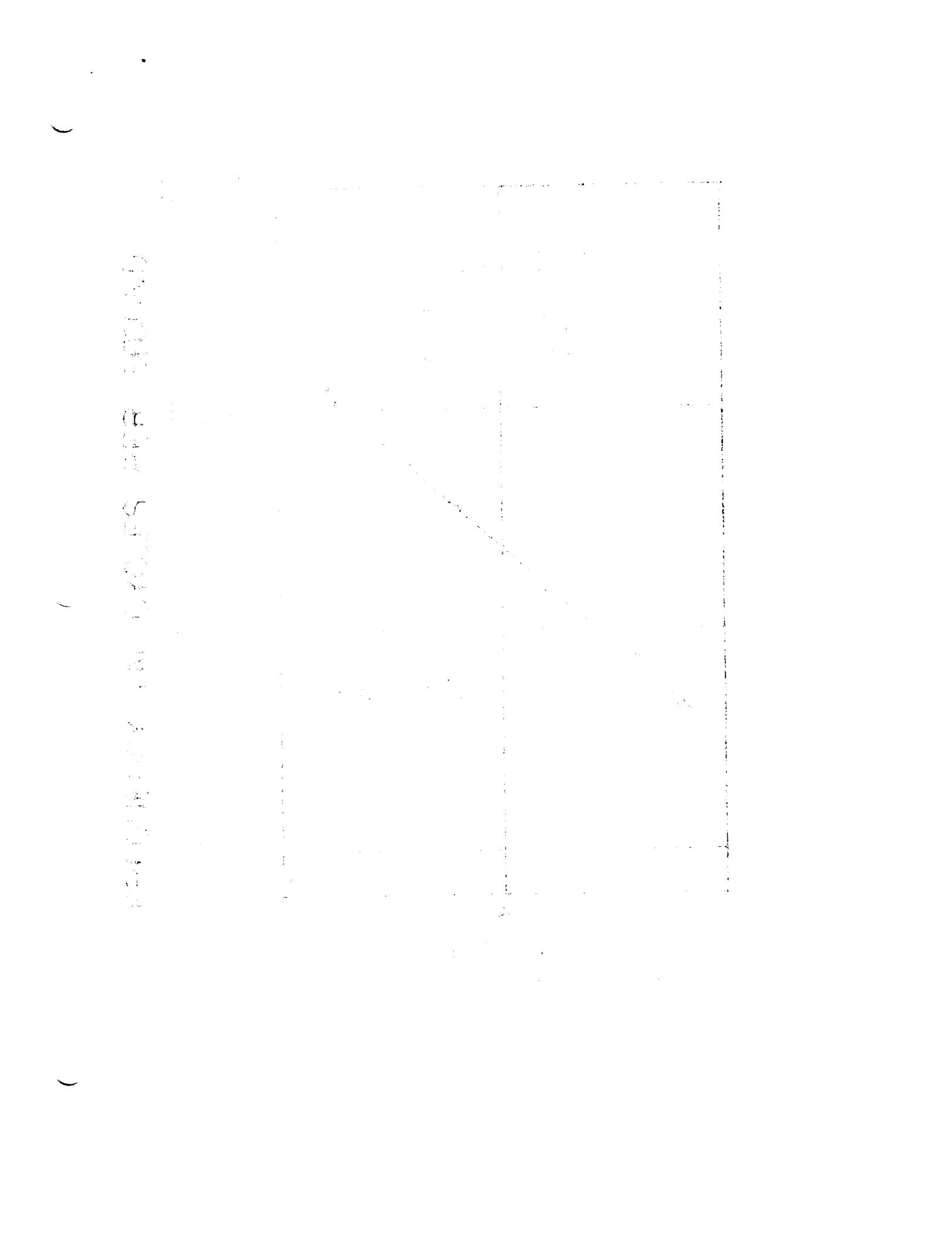
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R_1 R_2 R_3 R_4 R_5 R_6

C_1 C_2 C_3 C_4 C_5 C_6

N_1 N_2 N_3 N_4 N_5 N_6

O_1 O_2 O_3 O_4 O_5 O_6

S_1 S_2 S_3 S_4 S_5 S_6

P_1 P_2 P_3 P_4 P_5 P_6

F_1 F_2 F_3 F_4 F_5 F_6

D_1 D_2 D_3 D_4 D_5 D_6

G_1 G_2 G_3 G_4 G_5 G_6

H_1 H_2 H_3 H_4 H_5 H_6

I_1 I_2 I_3 I_4 I_5 I_6

J_1 J_2 J_3 J_4 J_5 J_6

K_1 K_2 K_3 K_4 K_5 K_6

L_1 L_2 L_3 L_4 L_5 L_6

M_1 M_2 M_3 M_4 M_5 M_6

N_1 N_2 N_3 N_4 N_5 N_6

O_1 O_2 O_3 O_4 O_5 O_6

P_1 P_2 P_3 P_4 P_5 P_6

Q_1 Q_2 Q_3 Q_4 Q_5 Q_6

R_1 R_2 R_3 R_4 R_5 R_6

S_1 S_2 S_3 S_4 S_5 S_6

T_1 T_2 T_3 T_4 T_5 T_6

U_1 U_2 U_3 U_4 U_5 U_6

V_1 V_2 V_3 V_4 V_5 V_6

W_1 W_2 W_3 W_4 W_5 W_6

X_1 X_2 X_3 X_4 X_5 X_6

Y_1 Y_2 Y_3 Y_4 Y_5 Y_6

Z_1 Z_2 Z_3 Z_4 Z_5 Z_6

Appendix F